Trend Study 19B-16-02

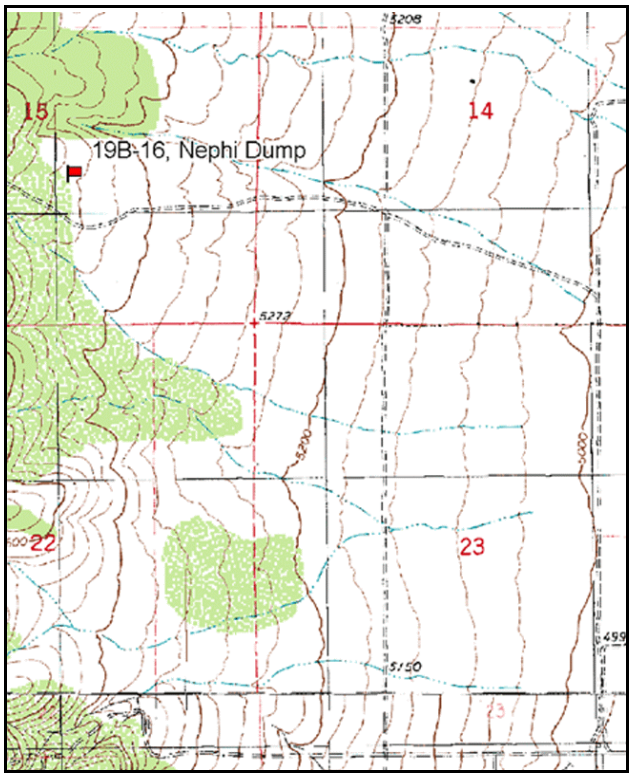
Study site name: Nephi Dump . Vegetation type: Stansbury Cliffrose .

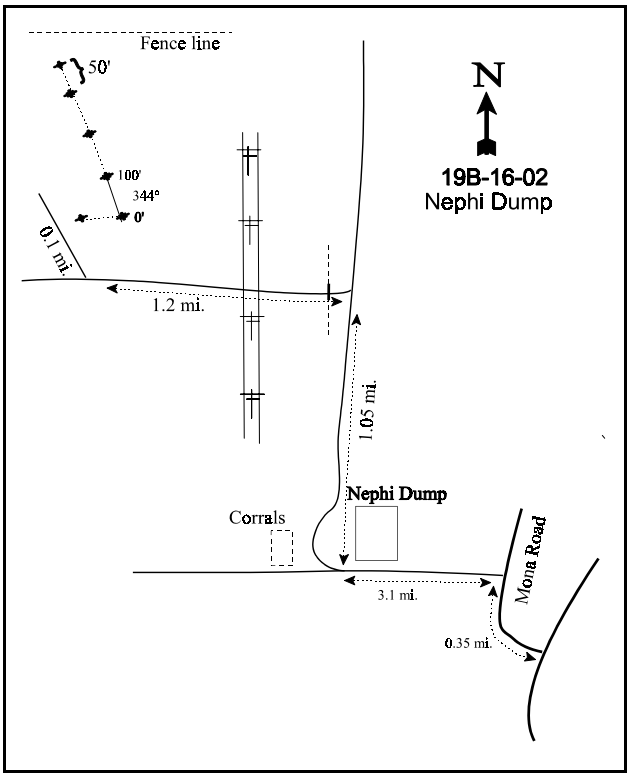
Compass bearing: frequency baseline 344 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (29ft).

LOCATION DESCRIPTION

From the Nephi City Dump, travel north on a gravel road for 1.05 miles and then turn left (west) just after passing through a cattle guard. Travel west for 1.25 miles and turn right (north) onto a faint road and go 0.1mile. At this point, there is a small stockpile and a short red steel stake. From here, walk east a short distance to the 0-foot mark of the frequency baseline, marked by a steel fencepost with a red browse tag, number 3942, attached.




Map Name: Slate Jack Canyon

Diagrammatic Sketch

Township 12S , Range 1W , Section 15

GPS: NAD 27, UTM 12S 4402117 N 421042 E

## DISCUSSION

### Nephi Dump - Trend Study No. 19B-16

The Nephi Dump trend study samples deer winter range located northwest of Nephi on the east side of Long Ridge. The site has a slope that varies from relatively level to 5%. Aspect is south to southeast at an elevation of 5,600 feet. The range type is mountain big sagebrush, interspersed with Utah juniper and Stansbury cliffrose. The site is located within an area of about 40 acres that was not burned by the extensive fires of 1996. Much of the surrounding vegetation has been burned in 1986 and 1996. It was reported in the past that use may be concentrated in this unburned area, but deer use in both readings since the burn (1997 and 2002) has been rather light. Cattle also use the area, but at lower rates compared to wildlife. A pellet group transect read on site in 2002 estimated 31 deer days use/acre (76 ddu/ha) and 7 cow days use/acre (16 cdu/ha).

The soil is light brown in color with rock and pavement scattered on the surface. Soil textural analysis indicates a clay loam, and chemical analysis reveals soils to be neutral in reactivity (pH of 6.9). The effective rooting depth was estimated at 9 inches. Average soil temperature was 71°F measured at 11 inches in depth in 1997. Vegetation and litter cover have been adequate to protect against most erosion, although the major deterrent to erosion on this site is the gentle slope. Due to drought conditions in 2002, bare ground increased and litter decreased, but the erosion condition class was still determined as stable.

The key browse species is mountain big sagebrush, which provided 60% of the browse cover in 2002. Identification of this species has been problematic in the past due to differing growth forms. It is likely that a minor component of basin big sagebrush also exists on the site. Population density was estimated at 1,920 plants/acre in 1997, increasing to 2,220 plants/acre in 2002. The sagebrush population has generally shown light to moderate use in all years. Percent decadence has been moderate, ranging from a low of 20% in 1997 to a high of 44% in 2002. The proportion of the population expressing poor vigor has ranged from 8% in 1983 to 28% in 1997. Recruitment has been low in all sampling years, although the population appears to have stabilized at it's present density. Annual leader growth averaged 2.2 inches in 2002. Stansbury cliffrose also provides some palatable forage, but it occurs infrequently on the site. Utilization is heavy on available plants. Other browse on the site include stickyleaf low rabbitbrush, white-stemmed rubber rabbitbrush, and broom snakeweed. Point-centered quarter data estimated 52 juniper trees/acre in 2002.

Perennial herbaceous species have steadily increased in sum of nested frequency since site establishment in 1983. Crested wheatgrass and Sandberg bluegrass are the dominant grasses. Together they provided 74% of the grass cover in 2002. Both have remained at stable nested frequency values. Bluebunch wheatgrass is also fairly abundant. Cheatgrass and Japanese brome are scattered throughout the site, but appear to have stabilized with the understory community as they have remained at similar levels in 1997 and 2002. Forbs contribute little to forage or ground cover. Perennial species have been infrequent since the site was established in 1983. Annual forbs were moderately abundant in 1997 and 2002, primarily pale alyssum and bur buttercup.

### 1983 APPARENT TREND ASSESSMENT

This is a poor condition site characterized by a lack of effective ground cover and excessive erosion. Plant composition consists of a declining population of mountain big sagebrush and increasing populations of broom snakeweed and stickyleaf low rabbitbrush. The Stansbury cliffrose population is stable to declining and there is an overabundance of cheatgrass in the understory. Utah juniper is present but not rapidly increasing. The overall trend appears to be declining.

1989 TREND ASSESSMENT

Shrub interspaces remain relatively bare as there is little vegetation ground cover present. Percent bare ground has declined, while percent pavement and rock cover combined have increased. Erosion is still occurring, but the level slope keeps erosion to a minimum. The soil trend is stable. Mountain big sagebrush shows a decline in density, increased percent of plants in poor vigor, and an increase in decadence. Reproduction is also poor with no seedling or young plants encountered. The increasers, stickyleaf low rabbitbrush and broom snakeweed, have also increased in density. The browse trend is slightly down. Both Sandberg bluegrass and bluebunch wheatgrass have significantly increased in sum of nested frequency since 1983. Herbaceous understory sum of nested frequency has increased since 1983 as well. The herbaceous understory trend is slightly upward.

TREND ASSESSMENT
soil - stable (3)
browse - slightly down (2)
herbaceous understory - slightly up (4)

1997 TREND ASSESSMENT

The soil trend continues to be stable. Some erosion is still apparent, but it does not appear excessive. Percent cover for bare ground is slowly declining, but so is percent litter cover. The browse trend is slightly downward with a declining mountain big sagebrush density and an increase in the percent of plants with poor vigor. The dead to live ratio is currently 1:3, with few seedling or young plants encountered. The stickyleaf low rabbitbrush density has increased again, while the broom snakeweed population appears to have stabilized. The herbaceous understory trend is upward with a large increase in perennial herbaceous understory sum of nested frequency. More desirable grasses such as bluebunch wheatgrass, crested wheatgrass, and Sandberg bluegrass are slowly increasing in abundance on the site.

TREND ASSESSMENT
soil - stable (3)
browse - slightly down (2)
herbaceous understory - up (5)

2002 TREND ASSESSMENT

Soil trend is stable. Litter cover continues to progressively decline on the site, and bare ground increased to 17%. However, herbaceous cover remains high and sum of nested frequency for perennial grasses and forbs increased. Erosion remains minimal. Trend for browse is stable. Mountain big sagebrush slightly increased in density and vigor improved. Decadence increased from 20% to 44% which is not surprising with drought. Reproduction remains limited with only 20 young plants/acre being sampled. The increasers, stickyleaf low rabbitbrush and broom snakeweed have stable to declining populations in 2002. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses and forbs slightly increased. Crested wheatgrass and Sandberg bluegrass remain the dominant species.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 19B, Study no: 16

| Type | Species | Nested Frequency | | | | Quadrat Frequency | | | | Average Cover % | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | '83 | '89 | '97 | '02 | '83 | '89 | '97 | '02 | '97 | '02 |
| G | Agropyron cristatum | $_{a}$7 | $_{a}$17 | $_{b}$143 | $_{b}$133 | 3 | 7 | 51 | 47 | 9.05 | 8.84 |
| G | Agropyron intermedium | - | - | - | 2 | - | - | - | 1 | - | .03 |
| G | Agropyron spicatum | $_{a}$10 | $_{ab}$30 | $_{ab}$33 | $_{b}$38 | 4 | 15 | 13 | 16 | 1.42 | 1.89 |
| G | Bromus japonicus (a) | - | - | 22 | 15 | - | - | 8 | 6 | .12 | .05 |
| G | Bromus tectorum (a) | - | - | 183 | 163 | - | - | 63 | 63 | 4.46 | 2.77 |
| G | Oryzopsis hymenoides | 1 | 5 | - | 4 | 1 | 2 | - | 2 | - | .03 |
| G | Poa pratensis | 3 | - | - | - | 1 | - | - | - | - | - |
| G | Poa secunda | $_{a}$103 | $_{b}$149 | $_{b}$161 | $_{b}$182 | 42 | 51 | 57 | 62 | 4.20 | 5.09 |
| G | Sitanion hystrix | 9 | 8 | 8 | 4 | 5 | 5 | 4 | 3 | .07 | .21 |
| Total for Annual Grasses | | 0 | 0 | 205 | 178 | 0 | 0 | 71 | 69 | 4.58 | 2.83 |
| Total for Perennial Grasses | | 133 | 209 | 345 | 363 | 56 | 80 | 125 | 131 | 14.75 | 16.11 |
| Total for Grasses | | 133 | 209 | 550 | 541 | 56 | 80 | 196 | 200 | 19.34 | 18.94 |
| F | Agoseris glauca | - | - | - | 1 | - | - | - | 1 | - | .00 |
| F | Alyssum alyssoides (a) | - | - | $_{b}$264 | $_{a}$151 | - | - | 90 | 60 | 3.04 | .37 |
| F | Astragalus calycosus | - | 3 | - | - | - | 1 | - | - | - | - |
| F | Astragalus eurekensis | $_{a}$- | $_{ab}$2 | $_{b}$10 | $_{c}$31 | - | 1 | 5 | 14 | .07 | 1.23 |
| F | Castilleja linariaefolia | - | 1 | 1 | 1 | - | 1 | 1 | 1 | .01 | .00 |
| F | Camelina microcarpa (a) | - | - | 10 | - | - | - | 4 | - | .02 | - |
| F | Calochortus nuttallii | $_{a}$2 | $_{a}$6 | $_{b}$18 | $_{a}$1 | 1 | 2 | 10 | 1 | .10 | .00 |
| F | Chorispora tenella (a) | - | - | 4 | 6 | - | - | 1 | 2 | .03 | .30 |
| F | Comandra pallida | 2 | 1 | - | - | 1 | 1 | - | - | - | - |
| F | Collinsia parviflora (a) | - | - | - | 6 | - | - | - | 3 | - | .01 |
| F | Cymopterus spp. | - | - | - | 6 | - | - | - | 2 | - | .03 |
| F | Lactuca serriola | $_{a}$- | $_{ab}$2 | $_{b}$9 | $_{a}$- | - | 1 | 5 | - | .02 | - |
| F | Microsteris gracilis (a) | - | - | 3 | 2 | - | - | 1 | 2 | .00 | .01 |
| F | Phlox austromontana | - | 2 | 1 | 1 | - | 1 | 1 | 1 | .00 | .03 |
| F | Phlox longifolia | $_{a}$- | $_{b}$13 | $_{b}$17 | $_{c}$40 | - | 7 | 9 | 20 | .04 | .27 |
| F | Ranunculus testiculatus (a) | - | - | 189 | 199 | - | - | 65 | 68 | 1.19 | 2.71 |
| F | Senecio multilobatus | - | - | 5 | 1 | - | - | 2 | 1 | .01 | .00 |
| F | Sisymbrium altissimum (a) | - | - | - | 1 | - | - | - | 1 | - | .00 |
| F | Sphaeralcea coccinea | - | 1 | 1 | - | - | 1 | 1 | - | .00 | - |
| F | Tragopogon dubius | - | 3 | 2 | - | - | 1 | 1 | - | .03 | - |
| F | Unknown forb-annual (a) | - | - | 4 | - | - | - | 2 | - | .01 | - |
| F | Unknown forb-perennial | 2 | - | - | - | 1 | - | - | - | - | - |
| F | Vicia americana | - | - | 2 | - | - | - | 1 | - | .03 | - |
| F | Zigadenus paniculatus | - | 1 | 4 | - | - | 1 | 2 | - | .01 | - |

| Type | Species | Nested Frequency | | | | Quadrat Frequency | | | | Average Cover % | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | '83 | '89 | '97 | '02 | '83 | '89 | '97 | '02 | '97 | '02 |
| Total for Annual Forbs | | 0 | 0 | 474 | 365 | 0 | 0 | 163 | 136 | 4.30 | 3.41 |
| Total for Perennial Forbs | | 6 | 35 | 70 | 82 | 3 | 18 | 38 | 41 | 0.34 | 1.59 |
| Total for Forbs | | 6 | 35 | 544 | 447 | 3 | 18 | 201 | 177 | 4.65 | 5.01 |

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 19B, Study no: 16

| Type | Species | Strip Frequency | | Average Cover % | |
|---|---|---|---|---|---|
| | | '97 | '02 | '97 | '02 |
| B | Artemisia tridentata vaseyana | 65 | 71 | 10.92 | 9.01 |
| B | Cercocarpus montanus | 0 | 1 | - | - |
| B | Chrysothamnus nauseosus | 2 | 1 | .79 | .98 |
| B | Chrysothamnus viscidiflorus stenophyllus | 40 | 46 | 5.49 | 4.12 |
| B | Cowania mexicana stansburiana | 2 | 0 | .78 | - |
| B | Gutierrezia sarothrae | 34 | 19 | .69 | .15 |
| B | Juniperus osteosperma | 1 | 1 | 3.40 | .68 |
| Total for Browse | | 144 | 139 | 22.08 | 14.94 |

CANOPY COVER --
Herd unit 19B, Study no: 16

| Species | Percent Cover | |
|---|---|---|
| | '97 | '02 |
| Juniperus osteosperma | - | 7 |

Key Browse Annual Leader Growth
Herd unit 19B , Study no: 16

| Species | Average leader growth (in) |
|---|---|
| | '02 |
| Artemisia tridentata wyomingensis | 2.2 |

Point-Quarter Tree Data
Herd unit 19B , Study no: 16

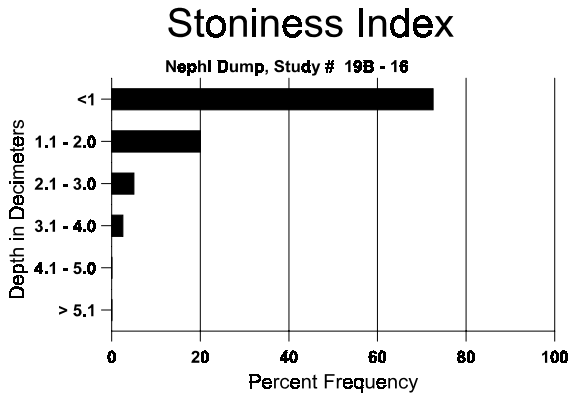
| Species | Trees per Acre | Average diameter (in) |
|---|---|---|
| | '02 | '02 |
| Juniperus osteosperma | 52 | 3.9 |

BASIC COVER --
Herd unit 19B, Study no: 16

| Cover Type | Nested Frequency | | Average Cover % | | | |
|---|---|---|---|---|---|---|
| | '97 | '02 | '83 | '89 | '97 | '02 |
| Vegetation | 372 | 353 | .25 | 5.00 | 38.75 | 41.17 |
| Rock | 247 | 267 | 13.25 | 13.00 | 9.50 | 10.58 |
| Pavement | 287 | 282 | 10.00 | 16.75 | 18.19 | 12.17 |
| Litter | 374 | 374 | 59.00 | 50.75 | 39.46 | 30.07 |
| Cryptogams | 135 | 231 | 4.00 | 4.50 | 3.96 | 14.77 |
| Bare Ground | 247 | 277 | 13.50 | 10.00 | 7.75 | 16.69 |

SOIL ANALYSIS DATA --
Herd Unit 19B, Study no: 16, Nephi Dump

| Effective rooting depth (in) | Temp °F (depth) | pH | %sand | %silt | %clay | %0M | PPM P | PPM K | dS/m |
|---|---|---|---|---|---|---|---|---|---|
| 9.1 | 71.0 (10.7) | 6.9 | 42.0 | 27.4 | 30.6 | 2.9 | 7.7 | 284.8 | 0.7 |




PELLET GROUP FREQUENCY --
Herd unit 19B, Study no: 16

| Type | Quadrat Frequency | |
|---|---|---|
| | '97 | '02 |
| Rabbit | 22 | 5 |
| Deer | 17 | 12 |
| Cattle | 8 | 1 |

| Pellet Transect | |
|---|---|
| Pellet Groups per Acre | Days Use per Acre (ha) |
| '02 | '02 |
| - | - |
| 400 | 31 (76) |
| 78 | 7 (16) |

BROWSE CHARACTERISTICS --
Herd unit 19B, Study no: 16

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Artemisia tridentata vaseyana | | | | | | | | | | | | | | | | | | |
| S | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | | | 3 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| Y | 83 | 9 | - | - | - | - | - | - | - | - | 9 | - | - | - | 300 | | | 9 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 5 | - | - | - | - | - | - | - | - | 5 | - | - | - | 100 | | | 5 |
| | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| M | 83 | 39 | 27 | - | - | - | - | - | - | - | 66 | - | - | - | 2200 | 22 | 24 | 66 |
| | 89 | 28 | 18 | 5 | - | - | - | - | - | - | 47 | 1 | 3 | - | 1700 | 34 | 30 | 51 |
| | 97 | 45 | 27 | - | - | - | - | - | - | - | 54 | - | 18 | - | 1440 | 24 | 33 | 72 |
| | 02 | 36 | 19 | 6 | - | - | - | - | - | - | 60 | - | - | 1 | 1220 | 24 | 31 | 61 |
| D | 83 | 17 | 10 | - | - | - | - | - | - | - | 19 | - | 8 | - | 900 | | | 27 |
| | 89 | 14 | 11 | 7 | - | - | - | - | - | - | 19 | 1 | 9 | 3 | 1066 | | | 32 |
| | 97 | 9 | 9 | - | 1 | - | - | - | - | - | 10 | - | 1 | 8 | 380 | | | 19 |
| | 02 | 29 | 16 | 4 | - | - | - | - | - | - | 33 | - | - | 16 | 980 | | | 49 |
| X | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 540 | | | 27 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 420 | | | 21 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 36% | 00% | 08% | -19% |
| '89 | 35% | 14% | 18% | -31% |
| '97 | 38% | 00% | 28% | +14% |
| '02 | 32% | 09% | 15% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 3400 | Dec: | 26% |
| | '89 | 2766 | | 39% |
| | '97 | 1920 | | 20% |
| | '02 | 2220 | | 44% |

| Cercocarpus montanus | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 02 | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | 20 | | | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | |
| '89 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | |
| '02 | 00% | 00% | 100% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 0 | Dec: | 0% |
| | '89 | 0 | | 0% |
| | '97 | 0 | | 0% |
| | '02 | 20 | | 100% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chrysothamnus nauseosus | | | | | | | | | | | | | | | | | | |
| M | 83 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 100 | 26 | 27 | 3 |
| | 89 | 2 | 1 | - | - | - | - | - | - | - | 3 | - | - | - | 100 | 19 | 22 | 3 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 42 | 74 | 0 |
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |
| | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | + 0% |
| '89 | 33% | 00% | 00% | -60% |
| '97 | 00% | 00% | 00% | -50% |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| '83 | 100 | Dec: | | 0% |
| '89 | 100 | | | 0% |
| '97 | 40 | | | 100% |
| '02 | 20 | | | 100% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chrysothamnus viscidiflorus stenophyllus | | | | | | | | | | | | | | | | | | |
| Y | 83 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | | 1 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | | 2 |
| | 02 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | | | 3 |
| M | 83 | 9 | - | - | - | - | - | - | - | - | 9 | - | - | - | 300 | 18 | 20 | 9 |
| | 89 | 21 | - | - | - | - | - | - | - | - | 21 | - | - | - | 700 | 13 | 14 | 21 |
| | 97 | 79 | - | - | - | - | - | - | - | - | 78 | - | 1 | - | 1580 | 17 | 18 | 79 |
| | 02 | 89 | - | - | - | - | - | - | - | - | 89 | - | - | - | 1780 | 16 | 22 | 89 |
| D | 83 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 66 | | | 2 |
| | 89 | 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | 33 | | | 1 |
| | 97 | 8 | - | - | - | - | - | - | - | - | 7 | - | - | 1 | 160 | | | 8 |
| | 02 | 27 | - | - | - | - | - | - | - | - | 19 | - | - | 8 | 540 | | | 27 |
| X | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 20 | | | 1 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | | | 5 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | +46% |
| '89 | 00% | 00% | 05% | +59% |
| '97 | 00% | 00% | 02% | +25% |
| '02 | 00% | 00% | 07% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | |
|---|---|---|---|
| '83 | 399 | Dec: | 17% |
| '89 | 733 | | 5% |
| '97 | 1780 | | 9% |
| '02 | 2380 | | 23% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cowania mexicana stansburiana | | | | | | | | | | | | | | | | | | |
| M | 83 | 3 | 2 | - | - | - | - | - | - | - | 5 | - | - | - | 166 | 27 | 25 | 5 |
| | 89 | - | - | 3 | - | - | - | - | - | - | 3 | - | - | - | 100 | 22 | 25 | 3 |
| | 97 | - | - | 1 | - | - | - | - | - | - | 1 | - | - | - | 20 | 64 | 66 | 1 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 58 | 37 | 0 |
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | 1 | - | - | - | - | - | - | - | - | - | 1 | 33 | | | 1 |
| | 97 | - | - | - | - | - | 1 | - | - | - | 1 | - | - | - | 20 | | | 1 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 40% | 00% | 00% | -20% |
| '89 | 00% | 100% | 25% | -70% |
| '97 | 00% | 100% | 00% | |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| '83 | 166 | Dec: | | 0% |
| '89 | 133 | | | 25% |
| '97 | 40 | | | 50% |
| '02 | 0 | | | 0% |

| Gutierrezia sarothrae | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | 6 | - | - | - | - | - | - | - | - | 6 | - | - | - | 120 | | | 6 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| Y | 83 | 10 | - | - | - | - | - | - | - | - | 10 | - | - | - | 333 | | | 10 |
| | 89 | 4 | - | - | - | - | - | - | - | - | 4 | - | - | - | 133 | | | 4 |
| | 97 | 20 | - | - | - | - | - | - | - | - | 20 | - | - | - | 400 | | | 20 |
| | 02 | - | - | - | - | - | - | 1 | - | - | 1 | - | - | - | 20 | | | 1 |
| M | 83 | 25 | - | - | - | - | - | - | - | - | 25 | - | - | - | 833 | 15 | 15 | 25 |
| | 89 | 68 | - | - | - | - | - | - | - | - | 68 | - | - | - | 2266 | 10 | 9 | 68 |
| | 97 | 75 | - | - | - | - | - | - | - | - | 70 | - | - | - | 1500 | 11 | 11 | 75 |
| | 02 | 20 | - | - | - | - | - | - | - | - | 19 | 1 | - | - | 400 | 7 | 8 | 20 |
| D | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | 4 | - | - | - | - | - | - | - | - | 2 | - | - | 2 | 133 | | | 4 |
| | 97 | 1 | - | - | - | - | - | - | - | - | - | - | - | 1 | 20 | | | 1 |
| | 02 | 13 | - | - | - | - | - | - | - | - | - | - | - | 13 | 260 | | | 13 |
| X | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 40 | | | 2 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 660 | | | 33 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | +54% |
| '89 | 00% | 00% | 03% | -24% |
| '97 | 00% | 00% | 01% | -65% |
| '02 | 00% | 00% | 38% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | |
|---|---|---|---|
| '83 | 1166 | Dec: | 0% |
| '89 | 2532 | | 5% |
| '97 | 1920 | | 1% |
| '02 | 680 | | 38% |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Juniperus osteosperma | | | | | | | | | | | | | | | | | | |
| Y | 83 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | | 1 |
| | 89 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 66 | | | 2 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | 20 | - | - | 1 |
| | 02 | - | - | - | - | - | - | - | 1 | - | 1 | - | - | - | 20 | - | - | 1 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | +50% |
| '89 | 00% | 00% | 00% | -70% |
| '97 | 00% | 00% | 00% | + 0% |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 33 | Dec: | - |
| | '89 | 66 | | - |
| | '97 | 20 | | - |
| | '02 | 20 | | - |

| Purshia tridentata | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 83 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 89 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 97 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 11 | 16 | 0 |
| | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |

| % Plants Showing | Moderate Use | Heavy Use | Poor Vigor | %Change |
|---|---|---|---|---|
| '83 | 00% | 00% | 00% | |
| '89 | 00% | 00% | 00% | |
| '97 | 00% | 00% | 00% | |
| '02 | 00% | 00% | 00% | |

| Total Plants/Acre (excluding Dead & Seedlings) | | | | |
|---|---|---|---|---|
| | '83 | 0 | Dec: | - |
| | '89 | 0 | | - |
| | '97 | 0 | | - |
| | '02 | 0 | | - |